

REMARKS

Claims 1 – 75 are pending in the present application. Reconsideration and allowance of the claims is respectfully requested in view of the following remarks.

Definition of Areal Density

Regarding the definition of areal density and the ability of a storage media to have a particular areal density, Applicants refer the Examiner to Applicants previously filed remarks and appeal brief (which are incorporated herein by reference), as well as to the jacket of a floppy disk that has printed on it “1.44 MB” (an areal density of the floppy disk). Finally, Applicants refer to a reference cited by the Examiner, U.S. Patent No. 6,146,755 to Guha et al., Col. 2, where they discuss a storage media with a storage density of 65 Gbits/in². The areal density is a property of the media. Applicants submit that areal density is a positive limitation.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 56, and 58 – 70 stand rejected under 35 U.S.C. § 102(b), as allegedly anticipated by U.S. Patent No. 5,538,774 to Landin et al. Applicants continue to respectfully traverse this rejection.

To anticipate a claim, a reference must disclose each and every element of the claim.

Lewmar Marine v. Variant Inc., 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987).

The Examiner refers to Figures 2 and 4b of Landin et al. to illustrate a substrate with a core having a varied thickness. Applicants continue to contend that neither of these figures illustrates a core with a varied thickness. Items 53 and 54 are referred to in the Office Action dated May 26, 2004 (hereinafter “OA After Appeal”). However, item 53 is the first damping material, and item 54 is a space. Wherever the damping material is located, the thickness does not appear to change; the thickness is not varied, it is constant; the layer is merely discontinuous. (See Landin et al., first damping material 53 in Figure 4b; Col.10, lines 1 – 10.) Landin et al. do not illustrate a core comprising a varied thickness, they illustrate a discontinuous core having a constant thickness. In other words, where the core exists in Landin et al., the thickness is constant. The non-existence of the core is not an illustration or teaching of a varied thickness.

The Examiner contends that "'varied thickness' applies to the embodiments represented by Figures 13, 16, 17, and 25 as well as those in Figures 29 – 35, and applicants never define what is meant by the term 'varied thickness'." (Final Office Action dated October 15, 2004; hereinafter FOA after Appeal). It is first noted that the specification and claims need to be enabled such that one of ordinary skill in the art can practice the invention without undue experimentation. There is no requirement to define ordinary terms in the specification. Applicants use the terms varied and constant in the specification and claims. A constant thickness is not varied, and a varied thickness is not constant. Figures 15, 16, and 17 of the present application, a substrate is illustrated with a core having a varying thickness at the ends (since it is rounded). As one of ordinary skill would understand, Figures 28 – 32 illustrate various substrate geometries having a varied thickness, while Figures 33 – 35 illustrate various core geometries having a varied thickness.

Landin et al. illustrate a substrate, having a constant thickness, and with a damping material and/or space, and illustrate the damping materials and spaces with constant thickness. The thickness of the damping material does not change across the damping material; the thickness is constant, not varied. The thickness of the space does not change across the space; the thickness is constant, not varied.

Reconsideration and withdrawal of this rejection are respectfully requested.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 30, 31, 34 – 40, 42, and 44 – 53 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Landin et al. in view of U.S. Patent No. 6,146,755 to Guha et al., U.S. Patent No. 5,972,461 to Sandstrom, and U.S. Patent No. 5,981,015 to Zou et al. Applicants respectfully traverse this rejection.

The Examiner notes that "the claims do not recite under which magnitude of shock or vibration" when claiming the axial displacement. (OA after Appeal, page 7) It is noted that the claims specify "under shock or vibration excitation". This language is described in the specification.

Applicants claim a disk having an axial displacement peak of less than about 500 μ under shock and/or vibration. This is clear, definite, and a property of the disk. The fact that various

techniques can be employed to control the axial displacement of the disk does not change the claim limitation. As admitted by the Examiner, Landin et al. fail to teach the axial displacement and surface roughness values claimed in the present application. (OA after Appeal, page 8) Sandstrom and Zou et al. are relied upon to teach the control of the axial displacement.

It would... have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Landin et al. to possess an axial displacement peak under shock or vibration excitation and a surface roughness meeting applicants' claimed magnitudes... in order to reduce the occurrence of head slap, insure good read/write properties of the medium, and to reduce a space between the magnetic head and the magnetic disc, thereby enhancing the recording density.

OA after Appeal, pages 8 – 9)

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Applicants content that the Examiner has failed to establish a *prima facie* case of obviousness for at least the reason that the Examiner admitted that Landin et al. fails to teach all of the elements of the claims and failed to propose a modification that would attain the present invention. In the OA after Appeal, some specific elements claimed by Applicants were identified in references by the Examiner. The Examiner then hypothesized that, because the reference teaches that the properties are good, an artisan is allegedly motivated to modify Landin et al. to possess these properties. However, there is no teaching, suggestion, or explanation of how, or if, Landin et al. can be modified to attain these properties and whether any modifications will affect the properties and media that Landin et al. are seeking to attain (thereby eliminating any possible motivation). Without a proposed modification, there can be no expectation of success; an

artisan cannot determine if a proposed modification could work for a particular media, having a particular design, when the modification is unknown.

The core geometries with respect to Landin et al. are discussed above.

Reconsideration and withdrawal of this rejection are requested.

Claims 1 – 6, 11, 14, 15, 17 – 27, 32, and 33 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Landin et al. in view of Guha et al., Sandstrom, Zou et al., and U.S. Patent No. 6,154,438 to O'Hollaren et al. Applicants respectfully traverse this rejection.

It is admitted in the OA after Appeal, that Landin et al., Guha et al., Sandstrom, and Zou et al., fail to disclose an edge lift meeting applicant's claimed magnitudes, yet it is alleged that:

However, O'Hollaren et al., teach that it is known in the art to reduce the edge lift height to applicants' claimed magnitude or less in order to allow for more of the surface of the disk to be used for recording, and hence a greater recording density...

It would, therefore, have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Landin et al., in view of Guha et al., Sandstrom and Zou et al., to further include an edge lift height meeting applicants' claimed magnitudes...

(OA after Appeal, page 10). In other words, even though each of these references teach specific designs to attain their desired features, the OA after Appeal alleges that properties and characteristics can be picked and chosen from these various references and the media of Landin et al. will have these features. Again, as discussed above, there is no modification explained by the Examiner, merely a result, and also, hence, no expectation of success. The portions of these teachings that are intended to be modified and changed to attain the Examiner's desired result are not known.

However, considering the state of the art and each of the references read as a whole, there is no expectation of success, as is supported by the state of the art after the present invention. For example, as is evidenced by the article "A Study on Spin Coating Method for Cover Layer of Blu-ray Disc," by Tae-Sik Kan et al., presented at the International Symposium on Optical Media, 2003 (pp. 298 – 299) (hereinafter "Kan et al.") that was published about two (2) years after the filing of the present application and about four (4) years after the filing of the parent application, "conventional" media at that time (i.e., in 2003), were media with edge-lifts of

greater than 50μ . This document discusses spin coating and issues of ski-jump (i.e., edge lift). The document provides an example of a polycarbonate substrate with a UV curable resin having a thickness of 100 ± 2 micrometers (μ) thereon. Table 1 shows that the edge lift ranges from 6.2μ to 54.3μ on a 100μ thick coating. In other words, an edge lift of less than about 8μ was not even possessed by storage media produced after the publication of the present application. Merely because one reference identifies a property as desirable does not mean that another media therefore will have that property. There must be a teaching to modify the media and an expectation of success that the media modified in the suggested fashion will have the desired property and will have the properties originally taught by the reference and will also function as intended in the reference.

The Examiner contends that " 6.2μ " is less than " 8μ ". (FOA After Final, page 14). Applicants do not deny that Table 1 shows that the edge lift ranges from 6.2μ to 54.3μ on a 100μ thick coating. Actually, Applicants pointed out this fact. Applicants point is that not all storage media are the same. Merely because edge lift is mentioned, does not mean that a media inherently has Applicants claimed edge lift; the edge lift value does not necessarily flow, is not a probability, based upon the teachings of the prior art. Kan et al. support that, even well after Applicants' invention, edge lifts of greater than 8μ were common.

With respect to surface roughness, core geometry, etc., the OA after Appeal relies upon Landin et al., which is discussed above.

Reconsideration and withdrawal of this rejection are requested.

Claims 16, 41, and 57 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Landin et al. in view of German Patent No. DE4326296 to Yamaguchi, and, in some cases, further in view of various combinations of Guha et al., Sandstrom, Zou et al., and O'Hollaren et al.. Applicants respectfully traverse these rejections.

Landin et al., Guha et al., Sandstrom, Zou et al., and O'Hollaren et al., are relied upon as discussed, and Yamaguchi is relied upon to allegedly teach core shapes claimed by Applicants. However, Yamaguchi does not appear to teach, mention, or suggest cores. The discussion in Yamaguchi relied upon in the OA after Appeal is directed to the substrate design. Item 7 in all of the figures of Yamaguchi is described as a "substrate" (Page 15, line 2) Hence, even if Landin et

al. and Yamaguchi (and Guha et al., Sandstrom, Zou et al., and/or O'Hollaren et al.) are combined, there is still no teaching regarding applicants claimed core geometries. These references fail to render the present claims obvious.

In the FOA after Appeal, the Examiner reminds Applicants that the test for obviousness is not whether features of the secondary reference may be bodily incorporated into the primary reference's structure,... rather the test is what the combined teachings would have suggested to those of ordinary skill in the art. (cite omitted)

(Page 14)

Applicants agree that references must be read as a whole for what they teach and that they may be combined based upon what they teach as a whole. Here, as a whole, none of the references teach Applicants claimed core geometries. Yamaguchi do not teach "forming each and every layer such that they possess a tapered structure". (FOA after Appeal, page 15) They teach tapering of the substrate. They teach a constant coating thickness:

[t]he current-less coated formulation, the magnetic field 9 and the protective film 11 in each case are made so as to have a uniform thickness over the opposite surfaces of the substrate 7.

(Yamaguchi translation, Page 15, lines 7 – 9) Additionally, there is no teaching with respect to a core. Hence, even if Yamaguchi is combined with Landin et al., the claimed core geometries of the present application are not taught.

The Examiner notes that

[i]t appears that applicants are arguing a structure of a core having a tapered surface while the plastic portion ends up with a surface having no variation from a line drawn through the center of the disk (*e.g., substrate structures shown in applicants' Figures 33 – 35*). ***This is not what is presently claimed!***

(FOA after Appeal, page 15)

Regarding Claims 1 and 16, Applicants have extensively discussed the references (particularly Landin et al.) and how they fail to teach the limitations of Claim 1, Yamaguchi does not resolve the deficiencies of Landin et al. with respect to Claim 1, and therefore, as a dependent claim from an allowable independent claim, Claim 16 is allowable. It is additionally noted that

there is no motivation to change the shape of the substrate of Landin et al. with the design of Yamaguchi et al. and no expectation of success.

Regarding Claims 41 and 57, these claims are directed to core geometries; "wherein said core comprises a cross-sectional geometry...". There is no limitation in these claims to the substrate geometry. Hence, these claims do cover (yet are not limited to) the embodiments set forth in Figures 33 – 35.

These references fail to render the present claims obvious. Reconsideration and withdrawal of these rejections are requested.

Claims 28, 29, 54, 55, 71, and 72 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Landin et al. in view of U.S. Patent No. 6,156,422 to Wu et al., and, in some cases, further in view of various combinations of Guha et al., Sandstrom, Zou et al., and O'Hollaren et al. Applicants respectfully traverse these rejections.

It is admitted in the OA after Appeal that none of Landin et al., Guha et al., Sandstrom, Zou et al., or O'Hollaren et al. teach the coercivities as is taught and claimed in the present application. Therefore, Wu et al. are relied upon to teach the coercivity. Wu et al. teach a high density magnetic recording medium with high HR and low MRT by employing particular layers with particular parameters. Wu et al. do not solve the deficiencies of the other references of record as described above. Wu et al. at least fail to teach a storage media having a surface roughness of less than about 10Å, an axial displacement peak of less than about 500 μ under shock and/or vibration excitation, and a core having a varied thickness. Hence, even in combination, Landin et al., in view of Guha et al., Sandstrom, Zou et al., and O'Hollaren et al., and further in view of Wu et al., fail to render the present claims obvious. Reconsideration and withdrawal of these rejections are requested.

Claims 73 – 75 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Landin et al. in view of U.S. Patent No. 4,911,967 to Lazzari, and, in some cases, further in view of various combinations of Guha et al., Sandstrom, Zou et al., and O'Hollaren et al. Applicants respectfully traverse these rejections.

It is admitted in the OA after Appeal that none of Landin et al., Guha et al., Sandstrom, Zou et al., or O'Hollaren et al. teach a substrate comprising a plastic portion comprising pits and grooves as is taught and claimed in the present application. Therefore, Lazzari is relied upon to teach the pits and grooves. Lazzari, however, fails to teach or render obvious many of the claim elements of the present application, such as axial displacement, edge-lift height, surface roughness, varied core thickness, etc. Hence, even in combination, Landin et al., in view of Guha et al., Sandstrom, Zou et al., and O'Hollaren et al., and further in view of Wu et al., fail to render the present claims obvious. Reconsideration and withdrawal of these rejections are requested.

Claims 7 – 10; 12, 13, 37, 38, and 51 – 53 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Landin et al. in view of various combinations of Guha et al., Sandstrom, Zou et al., and/or O'Hollaren et al., and further in view various combinations of U.S. Patent No. 4,987,020 to Bonnebat et al., U.S. Patent No. 5,968,627 to Nigam et al., U.S. Patent No. 6,096,419 to Ito et al., U.S. Patent No. 6,335,843 to Yotsuya et al., U.S. Patent No. 4,870,429 Fujita et al., U.S. Patent No. 5,585,989 to Kuromiya et al., U.S. Patent No. 5,875,083 to Oniki et al., and/or U.S. Patent No. 5,585,159 to Miyaka et al. Applicants respectfully traverse these rejections.

In all of these rejections (Sections 18 – 25 of the OA after Appeal), various references are relied upon to teach that a particular element of the present claims is “desired”. Due to the element allegedly being “desired”, it is alleged that the modification of the main reference, namely Landin et al., (generally in view of Guha et al., Sandstrom, Zou et al., and/or O'Hollaren) would have been obvious. For example, because Bonnebat et al., and Nigam et al. allegedly teach that low moment of inertia substrates are desired, it is alleged that to modify Landin et al. to minimize the substrate's moment of inertia would have been obvious (OA after Appeal, page 18 and 19); because Sandstrom, Zou et al, and Bonnebat et al. allegedly teach the importance of minimizing tilt, it is alleged that to modify Landin et al. to minimize the substrate's moment of inertia would have been obvious (OA after Appeal, page 20 and 21); because Bonnebat et al., Ito et al., and Yotsuya et al. allegedly teach the that it is important for the substrate to possess a “high dimensional stability with regard to temperature or moisture”, it is alleged that to modify

Landin et al. to “possess a moisture content which varies according to applicants’ claimed limitation” would have been obvious (OA after Appeal, page 22 – 24); because Fujita et al allegedly teach using a foamed damping material, it is alleged that to modify Landin et al. to possess a minimized specific gravity would have been obvious (OA after Appeal, page 24 and 25); and, because Kuromiya et al., Oniki et al., and Miyake et al. allegedly teach that one of ordinary skill in the art would have been motivated to produce a disk with no resonance/modal frequencies below the operating frequency, it is alleged that to modify Landin et al. to possess resonance/modal frequencies meeting applicants’ claimed limitations (OA after Appeal, page 25 and 26). Applicants respectfully disagree that a teaching that a claim element is desired (e.g., mentioning a desire to improve flatness, reduce tilt, etc.) renders modifying a media to attain that element obvious or provides any expectation of success.

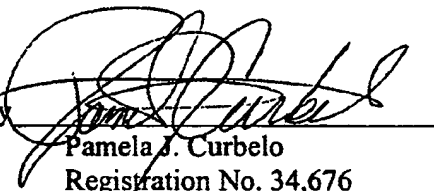
The Examiner has failed to establish a *prima facie* case of obviousness. In the OA after Appeal, the Examiner again listed “desired” elements, and because those elements were mentioned in various references, concluded that modifying the main reference to include those elements was obvious. There is no provision of what modification will attain those features, or any explanation of why that particular modification would have been obvious, or why there would be an expectation of success of obtaining the desired element while retaining the desired properties and characteristics taught by the main reference, by performing the unmentioned modification. The OA after Appeal merely lists elements claimed in the present application, in most cases does not even provide a teaching to the specific element (e.g., the claimed range), because the elements are terms that have been used in other references, the OA after Appeal states that it would have been obvious to modify the main reference (in some unknown way) to attain the desired element (presumably without adversely effecting the current design, properties, and characteristics of the media of the main reference), and the motivation for making these unknown modifications is that the element is desirable. A *prima facie* case of obviousness has not been established. Reconsideration and withdrawal of these rejections are requested.

It is believed that the foregoing amendments and remarks fully comply with the FOA after Appeal and that the claims herein should be allowable to Applicants. Accordingly, reconsideration and withdrawal of the objections and rejections, and allowance of the case are requested.

If there are any additional charges with respect to this Response or otherwise, please charge them to Deposit Account No. 07-0862.

Respectfully submitted,

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